

REMARKS

Claims 2 and 13-20 are pending in this application. By this Amendment, claim 2 is amended and claim 12 is cancelled. Claim 2 is amended to recite "a timer for measuring the charge time of the storage battery from a time when the control circuit controls the output voltage of the converter to return to the steady state voltage to a time when the battery is fully charged". No new matter is added.

I. The Claims Are Patentable Over The Applied References

The Office Action (1) rejects claims 2, 12¹, 14-17 and 19 under 35 U.S.C. §103(a) over U.S. Patent No. 7,061,139 to Young et al. (Young) in view of U.S. Patent No. 4,775,827 to Ijntema et al. (Ijntema) in view of Japanese Patent Publication No. 2000-050525 to Murase et al. (Murase); (2) rejects claim 13 under 35 U.S.C. §103(a) over Young in view of Ijntema in view of Murase, and further in view of U.S. Patent No. 5,196,780 to Pacholok; and (3) rejects claim 18² under 35 U.S.C. §103(a) over Young in view of Ijntema in view of Murase; and (4) rejects claim 20 under 35 U.S.C. §103(a) over Young in view of Ijntema in view of Murase, and further in view of U.S. Patent No. 6,295,215 to Faria et al. (Faria). Applicant respectfully traverses the rejections.

Regarding independent claim 2, the applied references fail to disclose, or render obvious, "a judgment circuit that judges the degradation of the storage battery based on a charging time of the storage battery from a time when the control circuit controls the output voltage of the converter to return to the steady state voltage to a time when the battery is fully charged" (emphasis added).

¹ Claim 12 is not listed in the rejection header, but is rejected in the body of the rejection.

² The Office Action rejects claim 18 over the same combination of references as claims 2, 12, 14-17 and 19.

The Office Action cites to Fig. 1 and col. 1, lines 59-60 of Young. IN the cited sections, Young discloses a prior art uninterruptible power supply (UPS) having a rectifier 120, an inverter 122, and a back-up battery 116 (Fig. 1; col. 1, lines 59-63). The Office Action alleges that Young discloses a degradation circuit (Office Action, page 3). However, Young discloses only those circuits necessary to charge battery 116 and drive loads 114 (Fig. 1). Young does not disclose any component that tracks a characteristic of the battery 116 or that compares a characteristic of battery 116 to expected values such that a degradation judgment can be made. Thus, Fig. 1 and the plain language of the related disclosure do not disclose or suggest any degradation circuit. The Office Action acknowledges that Young fails to disclose (1) the claimed control circuit; and (2) the claimed judgment circuit. The Office Action cites to Ijntema as allegedly disclosing the claimed control circuit and judgment circuit.

The Office Action cites to Figs. 1 and 6, the Abstract, and col. 2, lines 29-36 of Ijntema. Ijntema discloses a battery charge status indicator including a voltage detector 7, time measuring means 12, control means 8, and an indicator 14 that displays the charge status of a battery (Fig. 1). The charge status of a battery 4 is detected by measuring the elapsed discharge time and/or elapsed charging time (col. 2, lines 31-33). For example, the voltage detector 7 detects, during discharge of the battery 4, when the battery 4 has a voltage equal to 10% of the nominal battery capacity (col. 5, lines 26-29).

Regarding the feature of a control circuit, Ijntema discloses control means 8. However, the Ijntema control means 8 consists of two AND gates, first AND gate 20 and second AND gate 21 (Fig. 3). As can be seen from Fig. 3, the control means 8 receives signals from the power supply circuit 1 and the switch S1 and outputs signals to the first and second adjusting means 10 and 11 (col. 8, lines 13-26) that control the relevant one of adjusting means 10 and 11 to output the required nominal value to time measuring means 12

(Fig. 1; col. 6, lines 64-67 and col. 7, lines 47-51). Because the control means 8 does not have any component that controls the output of the power supply 1, the control means 8 does not correspond to the claimed control circuit that controls the "output voltage of the converter to be lower than a steady state voltage" or that "controls the output voltage of the converter to return to the steady state voltage" as claimed.

Regarding the feature of a judgment circuit, none of the measured times or voltages in Ijntema are explicitly used for determining degradation of battery 4 and Ijntema does not otherwise disclose detection of degradation of battery 4. Instead, Ijntema discloses that if there are discrepancies between the measured discharging time of battery 4 and the nominal discharging time stored in memory, the nominal discharging time is updated so that, in the future, the calculated charge status more closely matches the actual charge status (col. 6, line 51-57). However, while Ijntema is not directed to determining the degradation of battery 4, it may be held reasonable that Ijntema's charge status determined by comparing the actual discharging or charging time with the corresponding nominal discharging or charging time is an indication of the degradation of battery 4. However, even if Ijntema is deemed to disclose a degradation judgment circuit, because Ijntema fails to disclose the claimed control circuit, Ijntema fails to disclose the claimed judgment circuit "that judges the degradation of the storage battery based on a charging time of the storage battery from a time when the control circuit controls the output voltage of the converter to return to the steady state voltage to a time when the battery is fully charged" (emphasis added), as claimed.

The Office Action additionally cites to Murase as allegedly disclosing the claimed control circuit. Murase discloses a method for detecting deterioration of a battery. The control section 35 at the time of power converter loss of power controls the output voltage of the power converter 32 to be programmed-voltage V_A and determines the time t after reducing the output voltage of the power converter 32 until output current is detected. When

the time t is below a predetermined time, the storage battery 34 is judged to be deteriorated (paragraph [0025]). The Office Action alleges that the control section 25 corresponds to the claimed control circuit. Thus, while Murase discloses a degradation judgment circuit, Murase does not disclose, nor would have suggested, a judgment circuit that "that judges the degradation of the storage battery based on a charging time of the storage battery from a time when the control circuit controls the output voltage of the converter to return to the steady state voltage to a time when the battery is fully charged" (emphasis added) as claimed, because Murase's judgment of degradation is based on the time between when the output voltage of the power converter 32 is reduced until output current is detected.

As a second rejection rationale, the Office Action (page 5) cites to the Supreme Court's decision in *KSR Intern. Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007) and alleges that the claimed features of the control circuit, judgment circuit, and further features recited in the dependent claims were known and could have been combined with predictable results by one of ordinary skill in the art. Thus, the Office Action alleges the claimed degradation judgment circuit is obvious.

However, because none of the references, alone or in combination, teach the features that the Office Action relies upon, any permissible combination of the references would not have rendered obvious "a judgment circuit that judges the degradation of the storage battery based on a charging time of the storage battery from a time when the control circuit controls the output voltage of the converter to return to the steady state voltage to a time when the battery is fully charged". Because the Patent Office has been unable to cite to any reference disclosing the claimed judgment circuit, the Office Action is incorrect in asserting all the claimed features were known and the Office Action's basis for the second rationale is not correct.

Pacholok and Faria, cited for disclosing features of dependent claims, do not cure the deficiencies of the other applied references.

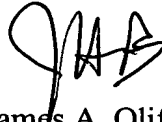
For the foregoing reasons, Applicant requests withdrawal of the rejections.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: October 9, 2008

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